

Work Order ID 54859

December 31, 2009 11:21:12 AM

Page 1

Item ID: D3691-1

Accept

Setup Start

Revision ID:

Stop

Item Name: STUD

Start Date: 12/31/2009 Start Qty: 12.00

Cust Item ID:

Required Date: 1/11/2010 Req'd Qty: 12.00

Customer:

Reference:

Approvals: Process Plan: *mf*

Date: *09-12-31* Tooling:

Date:

Run Start

QC:

Date: SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D3691

Rev *CR*

100

0.00



Bandsaw

BAND SAW

Memo

0.00

Jeaspa Bandsaw

DO NOT USE CHOP SAW

Cut blank 7.850" long

SA 10/01/04

110

0.00



Doosan

DOOSAN LATHE

Memo

0.00

Doosan Lathe

1-Turn as per Folio FA716 Rev: *NA* & Dwg D3691 Rev: *C* 2-Deburr
per dwg D3691
3-Check .625" bore with DT9530 GO/NO GO Gauge

SA / SL 10/01/09

120

0.00



QC

QC2- Inspect parts off machine FAI/FAIB

Memo

0.00

Quality Control

SA / SL 10/01/09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3691-1 PAR #: _____ Fault Category: Machining NCR: Yes No DQA: [Signature] Date: 10-01-28
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: [Signature] Date: 10-01-28

NCR: 54859		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10/01/09	100	- 2 parts have marks in inside Ø.625 caused by drilling, material	GP 10-01-11 per QSI 012	- scrap + replace	J.L 10/01/09	LF 10/01/11	GP 10-01-11 per QSI 012	C 10/01/11
		was extremely hard causing drill to wear out. RL Process: Mat. w per	GP 10-01-11				GP 10-01-11	S 10/01/11
		Day.						

NOTE: Date & initial all entries

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Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130



Lathe Conv

Conventional Lathe

CONVENTIONAL LATHE

0.00

Memo

0.00

Face to finished length as per dwg D3691 AND center drill as per Dwg D3691

140



QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

0.00

Memo

0.00

150



Doosan

Doosan Lathe

DOOSAN LATHE

0.00

Memo

0.00

1- Turn as per Folio FA716 Rev: _____ & Dwg D3691 Rev: _____ 12-Deburr
per dwg D3691

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

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Setup Start



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Item Name: STUD

Start Date: 12/31/2009 Start Qty: 12.00



Cust Item ID:

Required Date: 1/11/2010 Req'd Qty: 12.00



Customer:

Reference:

Run Start



Stop



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160



QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

0.00

Memo

0.00

N/A 9/10/01-11

170



QC

Quality Control

QC8- Inspect parts - second check

0.00

Memo

0.00

8/10/01/11

12

2

171



Purchasing

Purchasing

Memo

Liquid Penetrant Inspection as per QSI 038
Issue P/O: 11190
LPI as per dwg D3691
Attach copy of NDT results to work order

0.00

0.00

10-1-21

12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

173

Receive & Inspect for Damage & Mat'l Certs

0.00

Packaging

Memo

0.00

Packaging

175

QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

180

Identify as per dwg & Stock Location: GA

0.00

Packaging

Memo

0.00

Packaging

12/31/21 12

10 01 22 12

8 10/01/22

12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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NOTE: Date & initial all entries

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/01/25
MF 10-1-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

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Page 1

Work Order ID: 54859

Parent Item: D3691-1

Parent Item Name: STUD



Comments:

Start Date: 12/31/2009

Required Date: 1/11/2010

Start Qty: 12.00

Required Qty: 12.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
M174PH-H900R1.000		Purchased	No				f	89.7273	8.7644			
 												
17-4SS H900 ROUND BAR 1.00												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

MAT

89.7273

110213

0.3

110750

11.26

110990

0.87

111055

1.84

112374

11.87

112570

63.5873

8.7644 SL 10/01/09

941

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	54859
Description: Stud		Part Number:	D3691-1
Inspection Dwg: D3691	Rev: C	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.695	+/-0.010	.700	✓			
45°	0.5°	45°	✓			
0.625	+0.004/-0.000	.627	✓			
1.25	+0.000/-0.03	1.230	✓			
118°	0.5°	118°	✓			
R0.03	+/-0.030	.030	✓			
0.11 Ref	+/-0.030	.11	✓			
90°	0.5°	90°	✓			
Ø0.189	+0.005/-0.001	.191	✓			
1.31	+/-0.030	1.320	✓			
1.65	+/-0.030	1.657	✓			
0.750	+0.000/-0.010	.747	✓			
Ø0.659	+0.000/-0.015	.652	✓			
7.750	+/-0.015	7.751	✓			
2.90	+/-0.030	2.908	✓			
3/4-16UNF-2A	N/A	✓	✓			
0.075 x 45°	+/-0.010 x 0.5°	.078 x 45°	✓			
0.375	+0.000/-0.010	.372	✓			
Ø0.189	+0.005/-0.001	.191	✓			
R0.25	+/-0.030	.25	✓			
R0.50	+/-0.030	.50	✓			

Measured by:	/s/	Audited by:		Prototype Approval:	N/A
Date:	10/01/06	Date:		Date:	N/A

Rev	Date	Change	Revised by	Approved
A	09.05.11	New Issue	KJ	
B	09.11.04	Dwg Rev updated	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

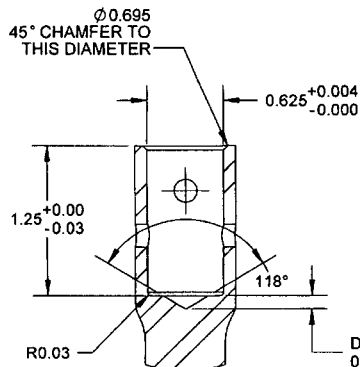
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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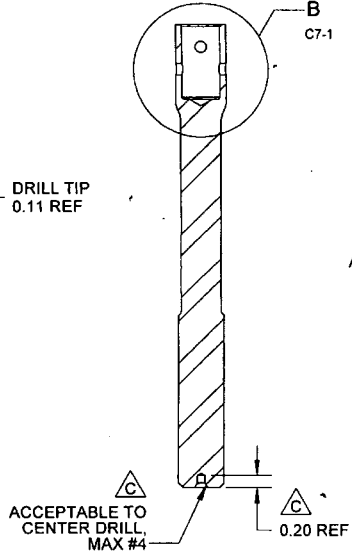
NOTE: Date & initial all entries

54859

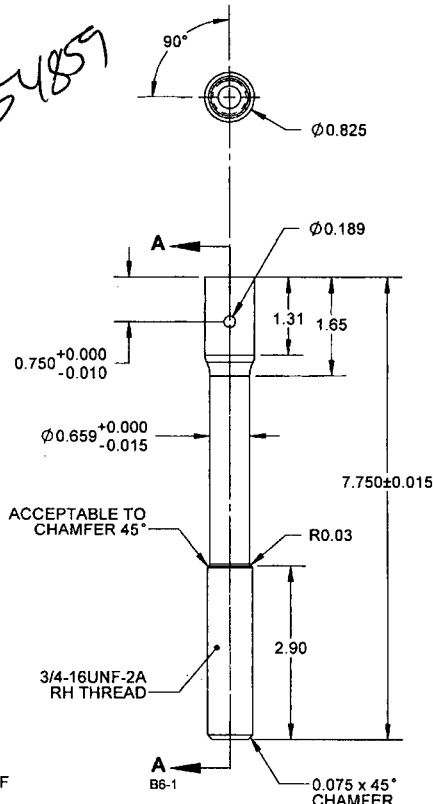
771



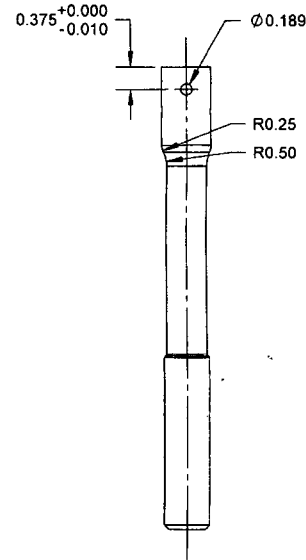
DETAIL B
SCALE 2X
C6-1



SECTION A-A
D4-1



D3691-1 STUD



RELEASED
2009-09-22

NOTES:

- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.81 lb
- 8) LPI PER QSI 038 4.1.1 (ASTM E1417 LEVEL 2)

C	0.20 WAS 0.16 & CENTER DRILL #4 WAS CENTER DRILL #2 (ZNB6-1); UPDATE NOTE 8 TO REF QSI (ZN A8-1)	RF	09.09.09
B	CHANGE TO 17-4PH H-900 (ZN A8-1); 0.695 WAS 0.665 (ZN D8-1); REFORMATTED TO CURRENT DWG	RF	08.11.24
A	NEW ISSUE	RF	08.03.12
REV.	DESCRIPTION	BY	DATE
DESIGN	RF		
DRAWN	RF		
CHECKED	GP		
MFG APPR.	GP		
APPROVED	GP		
DE APPR.	GP		
DATE	09.09.09		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D3691** REV. C
SHEET 1 OF 1
TITLE **STUD** SCALE NTS

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 15315

PAGE 1 OF 1

CLIENT DART NEWSpace DATE JANUARY 21-2010 TIME AM ☒ PM ☐
ATTENTION LINDA / CHAN TEL ACUREN JOB NO. 188-10-0046
ADDRESS 1270 ABEL DEEN ST PO/WO No. 11190
HAWKESBURY QLD K6H 1K7 WORK LOCATION SHOP
ACCEPTANCE STD. ASTM 1417 REV./DATE 2007
PROJECT F.P.I. ON 2 CROSS TUBES, 12
ITEM(S) EXAMINED MACHINED PARTS

JOB DESCRIPTION PROCEDURE NO. LT-0002 REV./DATE TECHNIQUE NO. LT-TECH 2 REV./DATE
PART NO. STAINLESS STEEL MATERIAL AUDINE ALUMINUM THICKNESS
SCOPE WET FLOW ESCENT LIQUID PENETRANT
INSPECTION CARRIED OUT 100% EXTERNAL

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 16457 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT ZL 67 MINIMUM DWELL TIME 1045 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER L.A.S. 20
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE 10-1-23
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/20°F ☐ -4°C/20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

12 STUDES, -W.O. 54859 ✓
1 CROSS TUBE, W.O. 55130 ✓
1 CROSS TUBE, W.O. 55131 ✓

ALL ITEMS HAVE BEEN FOUND
ACCEPTABLE TO STANDARD.
IN THIS REPORT.

10-01-22

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE MATTHEW MURDOCH DTR # E-27676
TECHNICIAN (SIGNATURE): [Signature] REPORT REVIEWED BY:
NAME (PRINT): U. Ke Jettis Tan NAME INITIALS
CGSB LEVEL 1st SNT LEVEL II CGSB LEVEL 2nd SNT LEVEL
CGSB REG. NO. 6666 CGSB REG. NO.



E-27696

Form dated Sep 2005

Client: DART AEROSPACE
Contact: 1270 ABRAHAM CEN ST, MARIETTA, GA
Location: 15 ABOVE
Description: F.P.I. - MACHINES PARTS, X-TUBES
Report #'s: —

Job #: _____
 Day: Sun Mon Tues
 P.O. #: _____
 Vehicle # 539

Date: JAN 24 - 21 - 2010
 Wed Thurs Fri Sat
 W.O #: 188 - 10 - 0646
 Camera #: —

[illegible]

RADIOGRAPHIC UNIT PRICING																			
Weld Diameter										Long Seam					Circ. Seam				
Schedule / Thickness										Thickness					Thickness				
Quantity										Lineal Ft.					Lineal Ft.				

Film: _____ Pcs. 2 ¾ x 17"
 _____ Pcs. 3 ½ x 17"
 _____ Pcs. 4 ½ x 17"
 _____ Pcs. 14" x 17"
 _____ Pcs.

Consumables:

Equipment:

Client Representative: Mattie Mendenhall

Place a check mark in each safety check area as completed	
C/C	CAMERA CHECK
S/E	SAFETY EQUIPMENT CHECK
S/C	SURVEY METER CHECK
B/S	BARRIER & SIGN INSTALLED
C/L	CAMERA LOCKED & SECURELY STORED
C/S	CAMERA SURVEYED AFTER EACH USE

[illegible]

ACUREN 1-877-299-2857

Oakville	(905) 825-8595 • Fax (905) 825-8598
Sarnia	(519) 336-3021 • Fax: (519) 336-8220
Sudbury	(705) 522-1849 • Fax (705) 522-9926
Halifax	(902) 497-3870 • Fax (902) 445-5090
North Bay	(705) 840-8107 • Fax (705) 476-6683
Val D'Or	(819) 856-6789 • Fax (819) 825-9564

Cambridge	(519) 622-3112 • Fax (519) 622-1326
Cornwall	(613) 931-1261 • Fax (613) 931-2777
Saint John	(506) 847-0194 • Fax (506) 847-0194
Thunder Bay	(807) 475-4240 • Fax (807) 577-2017
Gaspé	(418) 392-3618 • Fax (418) 392-4114
Hull	(819) 360-0685 • Fax (819) 827-3513